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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/823,355

04/12/2004

Robert Martinson

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EXAMINER

BAND, MICHAEL A

ART UNIT

PAPER NUMBER

1753

MAIL DATE

DELIVERY MODE

07/25/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

**Application No.**

10/823,355

**Applicant(s)**

MARTINSON ET AL.

**Examiner**

Michael Band

**Art Unit**

1753

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 02 July 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-11 and 13-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 and 13-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1-11 and 13-20 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Chung et al (US Patent No. 6,171,453).

With respect to claims 1, 14 and 20, Chung '453 discloses "an alignment shielding ring for use in a vapor deposition chamber" (col. 6, lines 4-5) that can be "used in a sputter chamber to shield alignment marks or any other marks provided on the edge of a wafer from sputtered metal particles" (col. 6, lines 17-20), with the chamber (figures 6A and 6B, part 80) having a movable pedestal (figure 6A, part 76) surrounded by chamber interior lower, side and upper walls. The target is shown in the prior art (figure 1, part 20) as being above the substrate and therefore, would be above the wafer (figure 6A, part 26) and present in the upper portion of the deposition chamber (figures 6A and 6B, part 80). As depicted in figures 6A and 6B, the pedestal shielding ring (part 84) is attached to the pedestal (82), with a pedestal elevator (part 76) capable of raising and lowering the pedestal (col. 6, lines 45-49). The pedestal shield surrounds and extends outward from the pedestal (figure 7; figures 6A and 6B, part 84). The upper chamber shield (figures 6A and 6B, part 46) extends downward from an upper portion, with a lower end extending inward towards and adjacent to the pedestal shield (part 84) when the pedestal is raised and the lower end above the pedestal when the pedestal is

lowered, with the lower chamber shield (figures 6A and 6B, part 48) also helping to prevent sputtered material from reaching the bottom.

With regard to loading the wafer horizontally, the reference fails to explicitly state how the wafer is loaded. It is either inherent or obvious in the design to remove part 48 via the connector pin seen connecting part 48 and part 54 together. Removing part 48 in figure 6A would leave sufficient distance to load the wafer horizontally (col. 6, lines 49-51) onto the pedestal.

With respect to claims 2 and 3, Chung '453 further discloses that in figures 6A and 6B the upper clamp shield (part 46) and lower clamp shield (part 48) work cooperatively with the pedestal shielding ring (part 84) to prevent sputtered target material from reaching the sidewalls and bottom when the pedestal is raised (figure 6B). The sidewall shield (part 48) is depicted in figure 6B as being below and outward of the pedestal upper surface.

With respect to claims 4 and 15, Chung '453 further discloses in figures 6A and 6B a shielding ring (part 84) which surrounds the upper portion of the pedestal (part 82; figure 7), and a lower portion on the outer portion of the pedestal that extends downward to the chamber lower wall.

With respect to claims 5 and 16, Chung '453 further discloses in Figure 6A a shielding ring (part 84) surrounding the pedestal and has a lower portion that extends downward to the chamber lower wall. Chung '453 also depicts that there is an outward portion extending away from this lower portion (part 48). Chung '453 further depicts a sidewall shield (part 48) that has a lower end disposed below and outward of the

pedestal shield upper portion and inward of the pedestal shield outward portion when the pedestal is raised.

With respect to claims 6 and 17, Chung '453 further depicts figure 6A having a shielding ring (part 84) with an upper portion surrounding the pedestal and a lower portion pointing downward. The lower chamber shield (part 48) is adjacent to the shielding ring, having an upward portion that extends outward. Figure 6B shows a sidewall shield (i.e. part 46) that has a lower end disposed outward of the upper portion of the pedestal shield and inward of the pedestal shield outward portion (part 48). The sidewall shield (figure 6B, part 46) has an outward portion between the chamber sidewall and the sidewall shield lower end disposed outward of the pedestal shield outward portion when the pedestal shield is raised.

With respect to claims 7 and 18, Chung '453 further depicts figure 6A having a shielding ring (part 84) with an upper portion surrounding the pedestal and a lower portion pointing downward. The lower chamber shield (part 48) is adjacent to the shielding ring, having an outward portion that extends upward. At a raised position, the lower chamber shield (part 48) becomes the sidewall shield, with a lower end disposed below the pedestal and outward of the pedestal, and an upward portion that is inward of the pedestal shield outward portion when the pedestal is raised (figure 6B).

With respect to claims 8 and 19, Chung '453 further depicts an outward portion of the sidewall shield (part 48) that is between the chamber wall and the lower end of the sidewall shield which is outward of the pedestal shield outward portion (part 84) when the pedestal is raised (figure 6B).

With respect to claim 9, Chung '453 further depicts a sidewall shield (part 46) with a lower end disposed above the pedestal shield (part 84) when the pedestal is raised (figure 6B) and the pedestal shield extends outward from the pedestal (part 82) toward the chamber sidewalls and below the sidewall shield lower end.

With respect to claim 10, Chung '453 further depicts a pedestal shield (part 84) with an upper portion surrounding the pedestal (figure 7) and a lower portion extending downward toward the chamber wall, and the sidewall shield (part 48) has an extension to the lower end extending downward below the pedestal shield lower portion, and an inward portion extending upward from the extension, and wherein the pedestal shield lower portion is between the sidewall shield lower end extension and sidewall shield inward portion (figures 6A and 6B).

With respect to claim 11, Chung '453 further depicts a pedestal shield (figure 6A part 84) with an upper portion surrounding the pedestal and a lower portion extending downward toward the chamber wall and further including a bottom wall shield (figure 6A, part 48) having a lower portion extending along the chamber lower wall, and inward and outward portions extending upward from the bottom shield lower portion. The bottom wall shield inward portion extends inward of the platform (i.e. pedestal) shield lower portion and the bottom wall shield outward portion extending outward of the platform (i.e. pedestal) shield lower portion.

With respect to claim 13, Chung '453 further depicts in figures 6A and 6B that the sidewall shields (part 46 and 48) are adapted to avoid contact with the pedestal in both raised and lowered positions.

***Response to Arguments***

2. Applicant has amended claim 11 to no longer read as indefinite. Therefore the Examiner has withdrawn the rejection.

3. Applicant's arguments, with regards to claims 1-11 and 13-20, filed July 2, 2007 have been fully considered but they are not persuasive.

4. On page 11 of the Applicant's Remarks, Applicant argues that the Chung '453 depicts pedestal shielding ring (part 84) and lower chamber shield (part 48) as not cooperating unless the pedestal is in the lowered position (figure 6A). The Applicant respectfully notes that this cooperation when the pedestal is in a raised position is an integral part of the claimed invention.

5. The Examiner respectfully disagrees with Applicant's arguments because in the raised position (figure 6B), the pedestal shielding ring (part 84) and the lower chamber shield (part 48) are still functioning in a cooperative manner despite not being in near contact with one another (figure 6A) since the two parts are simultaneously blocking unwanted deposition particles from reaching the walls and the floor of the deposition chamber. In addition, cooperation of the shielding ring (part 84) and lower chamber shield (part 48) does not require contact, as implied by Applicant's arguments, since these two parts function simultaneously for blocking particles regardless of being in a raised or lowered position.

***Conclusion***

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Band whose telephone number is (571) 272-9815. The examiner can normally be reached on Mon-Fri, 8am-4pm, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alexa Neckel can be reached on (571) 272-1446. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

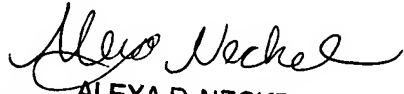
8. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should



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you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MAB

  
ALEXA D. NECKEL  
SUPERVISORY PATENT EXAMINER